Fault Mechanics

This issue of the *Journal of Geophysical Research* is largely derived from papers presented at a conference entitled 'Fault Mechanics and Its Relation to Earthquake Prediction' held at Stanford University, December 1–3, 1977. The conference was organized by Amos Nur of Stanford and William D. Stuart, U.S. Geological Survey, Menlo Park, as a part of the Earthquake Hazards Reduction Program of the U.S. Geological Survey.

Considerable attention at the conference was directed to poorly understood aspects of both the cause and the effect of earthquakes, and recurring themes were, and still are, the magnitude of deviatoric stresses giving rise to crustal earthquakes in the first place; constitutive relations of fault zone materials, both the strain (or strain rate) weakening properties of the seismogenic portion of crustal faults that determine the nature of the earthquake instability and the form of aseismic accommodation of plate motions at greater depth; the physics of a growing, dynamically propagating rupture; and the several manifestations and interpretations of dynamic and quasi-static inhomogeneities that are apparently an integral part of crustal faulting.

The papers sample these themes in rough proportion to the attention given them at the conference, although the collection of papers here by no means represents a complete proceedings of the conference.

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